

# **AN OPTICAL SIGNAL MULTIPLEXER/DEMULTIPLEXER EMPLOYING PSEUDORANDOM MODE MODULATION**

## **ABSTRACT OF THE DISCLOSURE**

An optical signal multiplexer/demultiplexer using an orthogonal pseudorandom (PRN) coding scheme for optical mode modulation to produce a plurality of independent optical signals that may be combined into one multiplex signal for transmission over an optical fiber to the receiving end, where the multiplex signal may be demultiplexed by relying on the orthogonal properties of the PRN code to isolate each independent optical signal from the transmitted multiplex signal. In channels subject to mode modulation distortion, one of the signal components may be used as a pilot signal to obtain a correction for channel mode modulation distortion. The PRN optical signal multiplexer/demultiplexer is particularly useful with polarization mode modulation.

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